

A CASE OF SPONTANEOUS FRACTURE OF A VESICAL CALCULUS.¹

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A MALE, street-singer, W. B., æt. 16, was admitted to the Radcliffe Infirmary under the care of one of the physicians on the 17th of August, 1888. He complained of incontinence of urine and great pain and tenderness over the left kidney. The boy was much emaciated, had no appetite and suffered much from nausea. He had absolute incontinence of urine.

On August the 23rd, I was asked to see the patient; it was, of course, necessary to sound the bladder for purposes of diagnosis. As the patient was very nervous and bore pain badly, I decided not to do so then and there, but to have him taken to the operating theatre on the following day, and then to sound and generally complete the diagnosis under an anæsthetic, being prepared to operate in any manner suggested by the result of the examination. On introducing the sound, I discovered a urethral calculus about 4 or 5 inches from the meatus. I seized it with urethral forceps, but as there was considerable difficulty in withdrawing it, I cut upon it in the perineum and removed it through the incision. A rectangular staff was then passed into the bladder and several calculi were felt.

The perineal incision was continued on into the bladder and enlarged somewhat in a lateral direction, to give more room for the withdrawal of the stones. Five calculi, or rather, fragments of one calculus were then removed with some little difficulty.

August 25th. The boy slept fairly last night, and his general condition is much improved. Since the operation he has made steady progress; at this time, October 10th, he has absolute control over his

¹The report of this interesting case is due to Mr. F. S. ARNOLD, M.A., M.B. Oxon., M.R.C.S., Eng.

urine, which all passes per urethram. He sleeps and eats well, the tenderness over the left kidney, which was a marked symptom on his admission, has completely disappeared. The urine still contains some pus and albumen.

The chief interest in this case lies in the fact that it is an instance of a somewhat rare condition, viz., spontaneous fracture of a vesical calculus. It was obvious on a first glance at the stones as they were removed, that they were all fragments of one calculus. It was one of these fragments which had become impacted in the boy's urethra and given rise to the incontinence of urine. The six fragments, when fitted together, did not quite constitute the whole calculus; there was a small piece missing, which had, in all probability, been passed per urethram before admission. The fracture had evidently occurred some time back, as the larger fragments were water worn and the fractured surfaces smooth polished.

The combined weight of the six fragments is 322 grains. The stone has a phosphatic interior with an envelope of calcium oxalate; the composition of the stone is interesting as all the cases of spontaneous fracture hitherto recorded have occurred in uric acid calculi.

Several theories have been broached to account for the spontaneous fracture of a vesical calculus.

Civiale suggested that it might be due to the pressure of a hypertrophied bladder; it has also been supposed that the concussion of one stone against another might be the cause in cases where the fragments represented more than one original calculus. Neither of these theories have any evidence to support them.

Dr. Ord, of St. Thomas's Hospital, who has taken much interest in this subject, and has collected the records of a considerable number of cases, points out that in many of these cases the nucleus of the stone is wanting, and theorises as follows: "If you will compare the two sets of fragments now exhibited, with those described in my former lecture, you will, I think, have no hesitation in recognizing a strong family like-

¹*Brit. Med. Journal*, 1878, Vol. 2, p. 347.

ness between the three. All are segmentary fragments of pisiform calculi, composed of either uric acid or acid urate of ammonia, in all the nucleus is wanting, in many specimens of all three groups indications are afforded, in the presence of an investing layer of mere alkaline material, of a change in the reaction of the urine immediately after, if not at the very time of, disruption. I maintain, therefore, that in a changed state of the urine the nucleus had become swollen and had acted as a bursting charge in a shell."

Another theory ascribes the fracture to growth of a minute fungus, allied to, if not identical with, the penicillium glaucum.

It is obvious that Dr. Ord's theory does not hold good in regard to this case; in the first place the nucleus is intact, the fracture consisting of a mere splitting off of part of the envelope; secondly the chemical composition of the stone is entirely different from that of the calculi from which Dr. Ord drew his theory.

Mr. Willson, dispenser to this Hospital, has suggested that in this stone the fracture may have been due to change on the part of the calcium oxalate from the amorphous to the crystalline state.

In Erichsen's Science and Art of Surgery the theory is advanced that these calculi are usually of irregular shape and bossed on the surface, and that some phosphatic material becomes deposited in these irregularities, and so levers off a portion of the laminated deposit. In this case I am inclined to the last theory.

The specimen is now in the Royal College of Surgeons' Museum.